ADAPTABILITY AND PERFORMANCE ASPECTS OF LEARNING MANAGEMENT SYSTEM (LMS) FOR ACADEME IN INDIA

Vijaya Karthik S V[1*] and **Dr. Kavitha Shanmugam[2]**

[1] Application Architect, IBM India Private Limited, Bangalore.

[2] Associate Professor, St. Perter's College of Engineering & Technology, Avadi, Chennai.

ARTICLE INFO	ABSTRACT

Now days, the applications of Information and Communication Technology (ICT) are not limited to social media, data transmission, cloud deployments and Internet of Things (IoT). With the utilization of technology loaded smart devices and innovation based products, relatively every area is utilizing I.T. based products with the goal that higher level of execution and effectiveness in the work can be accomplished. The area of Education and Learning is additionally one of the key domains where enormous I.T. based modules are being used including Tele-Learning Suites, Learning Management Systems, E-Learning products, Smart Education based ERP Applications and numerous others. As per the research reports, India is the second largest market in E-Learning after United States (US). The worldwide group of training including colleges, universities, schools and establishments are chipping away at superior ERP based instruction devices for constant access of educating and learning assets. The worldwide market of e-learning in year 2014 was 165.36 million dollars which is anticipated to be raised to 243.8 million dollars with the Compound Annual Growth Rate (CAGR) of over 5% as the reports from Statista, the Statistical Portal. This research work concentrates on the available size and also the use examples of E-Learning ERP applications in the scholastic space with the particular case situation of Moodle LMS as one of the noticeable and multi-useful stage for the improvement of Learning ERP.

INTRODUCTION

India is one of the leading countries in the access of Internet resources worldwide. From a research, it is found that there are more than 500 million Internet Users in India in the current year 2017. These users access different types of Internet services including social media, e-learning, YouTube videos, messaging applications and many others.

There are more than 60 million YouTube users in India spending more than 48 hours monthly for different views including education, movies and others.

Learning Integrated Enterprise Resource Planning (ERP)[1] stages help the academic gathering including understudies, investigate specialists, instructors, lab teachers, library staff and related specialists in the speeding up of their understanding with the associates of training and learning resources ceaselessly. In Present days, the examples of consolidating Learning ERPs are extending in the universities, schools and research foundations so the understudies and moreover instructors can get to the chronicled and rhythmic movement resources for larger amount of practicality.

The circumstance of accepting ERP products in preparing is moreover in the upward line in India as per the reports from top MNC's[2]. In an investigation examination performed by KPMG with the relationship of Google, it was presented that the Online Education Industry will connect with 2 billion dollars in India by year 2021. Besides, the reports demonstrates that the patters of online output extended 2 times for guideline and 3 times from phones for preparing and learning purposes. The passage and use of YouTube content on preparing moreover fortified 4 times in India. This data is amazingly intriguing to the extent the growth of Indian region in using the cloud build products regarding direction and learning. The growth in the market size of e-learning is increasing rapidly with the measure of more than 243 billion dollars by year 2022. This bit of knowledge and figure is shown by the statistical analysis[3].

Figure – 1: *Statistical Analysis of E-Learning Products with Respect to the Market Size*
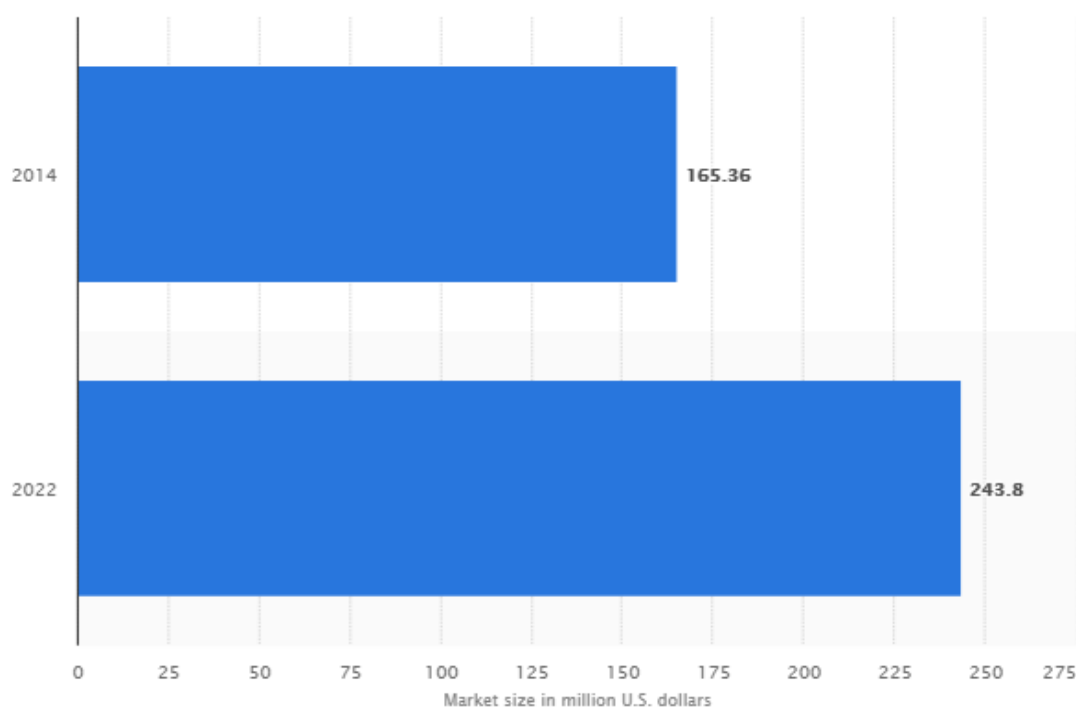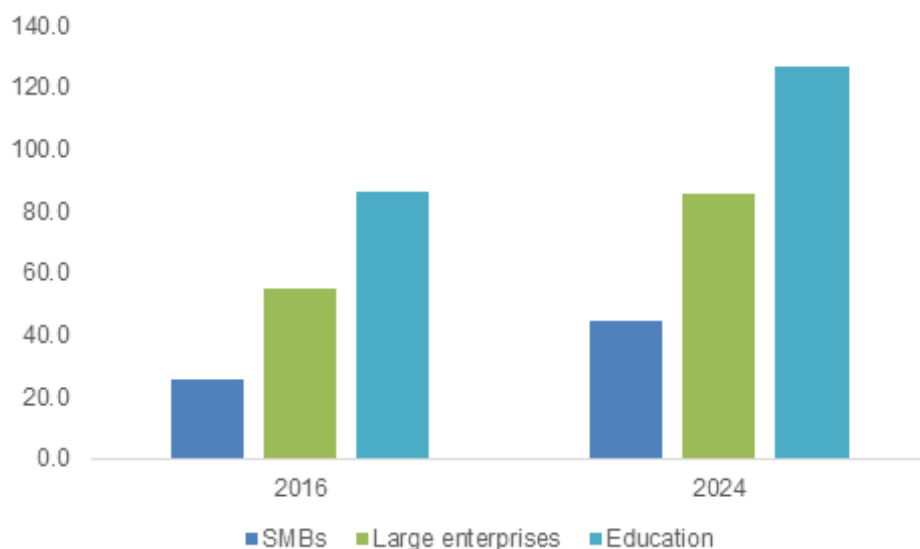
Figure – 2: *Predictive Analysis of Global E-Learning VS Market Size in Billion Dollars*

From the other research survey, it is evident that the education system through LMS is improved through various parameters which includes improved study efficiency[4], Better preparation of classes, more confidence in knowledge of course material, Improved ability to handle non-academic demands. The 74 % of students are satisfied with the digital learning products in their academic activities for their improved knowledge and quality of the learning methodologies[5].

Figure – 3: *Feedback from the Students using e-LMS*
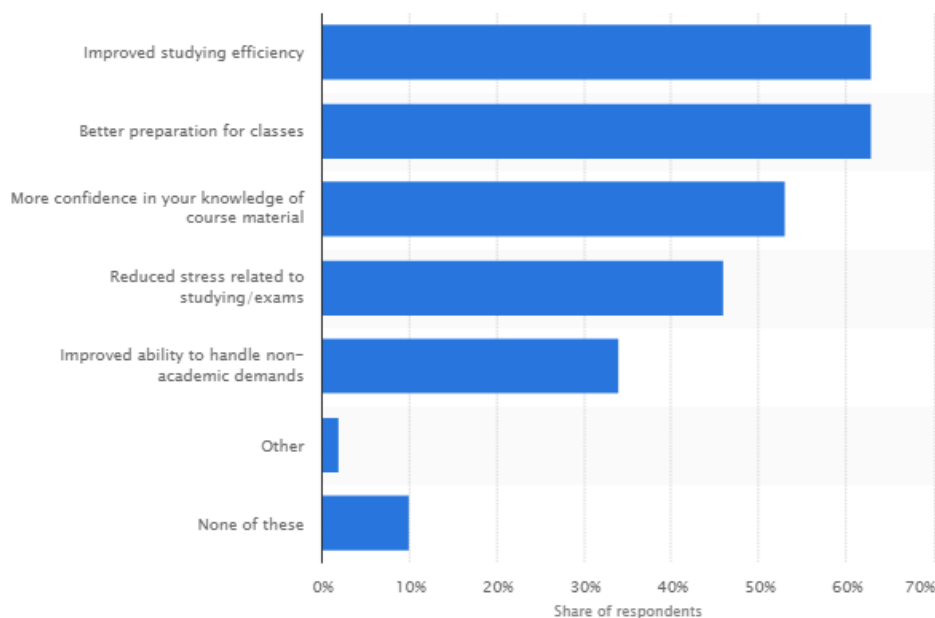
RESEARCH DESIGN AND METHODOLOGY

The broad objectives of the present study are as follows:
- This research study aims at calculating the performance of various learning Enterprise Resource planning solutions in the educational institutions on assorted parameters and key factors.

- Analyzing the various Learning Management Systems like Moodle, SAKAI and comparing those features with the ERP Learning in terms of various performance parameters.
- Analyzing the contentment level of the learners and instructors in various academic institutes of India.
- Investigating the performance of manual method of teaching aids and made a comparative study with the ERP Learning approach using sampling technique.

2.1 Development of Survey Questionnaire

SERVQUAL Model based questionnaire is prepared and to be got filled from the respondents of students, Teaching Faculty and Professors to evaluate the assorted perspectives on emotional values, job satisfaction and contentment score with the institutional policies and working environment.

Figure – 4: *SERVQUAL Model*
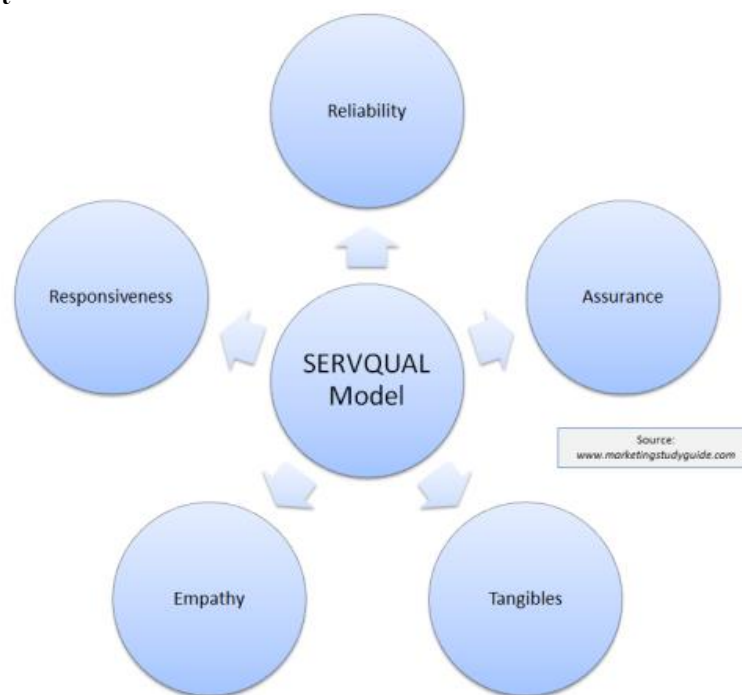
The key factors for the satisfaction and contentment are
- Whether the respondents are satisfied with their working environment.
- Overall feedback of the respondents along with the personal behavior.
- The amenable / friendly behavior of the co-workers and biasing factor.
- To recognize the transparency in the working environment towards female professionals

2.2 Research Questionnaire

The research questionnaire is solely based on the SERVQUAL model for the query and data collections. The earlier title of SERVQUAL is currently named as RATER Model which includes Reliability, Assurance, Tangibility, Empathy, Responsiveness.

Figure – 5: *Various Segments in Quality Model*
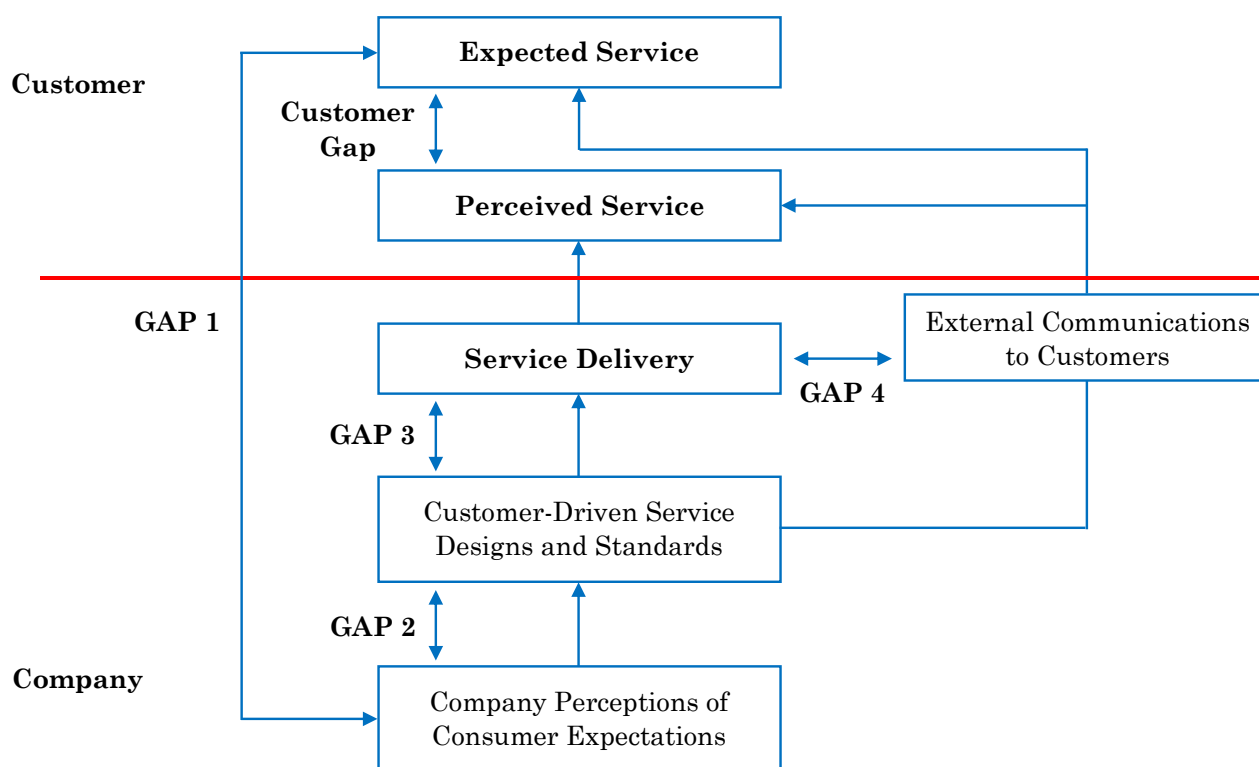
2.3 Sampling Methodology

The below Probability and non-probability Sampling techniques are adopted to select the considerable learners from various institutes and group them under various inhabitants. The various probability sampling methods are Simple random sampling, Cluster Sampling, Systematic sampling, Multi stage sampling, Stratified sampling. The Various non-probability sampling methods adopted in this study are Convenience sampling, Snowball sampling, Quota sampling, Judgment sampling.

2.4 Sampling Technique Followed in the Study

This research follows the convenience sampling method to identify the expectations of students and teachers for their learning. The data set have been collected across various engineering colleges in Tamilnadu and Karnataka. Also, the customer satisfaction level has been analyzed with this sampling technique.

RESULTS, ANALYTICS, INTERPRETATION

For this research interpretation, the data is collected from 220 users who are using e-learning and are evaluated using the Bi-chi test so that the overall expectation towards the learning ERPs can be calculated from the students and teachers of various engineering colleges. The analytics have been performed with respect to the key factors such as tangibility, reliability, assurance, empathy and responsiveness and the final understanding is evaluated.

Figure – 6: *Sampling Analytics Pattern*

```
┌─────────────────────────────────────────┐
│  Analysis of the Roles and Tasks Performed│
│      by the Learning ERP Systems          │
└─────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│  Fetching the Live Data Sets from Secondary│
│                Sources                     │
└─────────────────────────────────────────┘
                     │
                     ▼
┌──────────────────┐    ┌─────────────────────┐    ┌──────────────────┐
│ Statista Portal  │◄──►│ Analytics of the     │◄──►│ Media and Govt.  │
│ for Statistical  │    │ Literature and Related│    │ Reports          │
│ Datasets         │    │ Research             │    │                  │
└──────────────────┘    └─────────────────────┘    └──────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│      Data Interpretation and Analysis     │
└─────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│  Evaluation of the Overall Performance and│
│              Future Scope                  │
└─────────────────────────────────────────┘
```
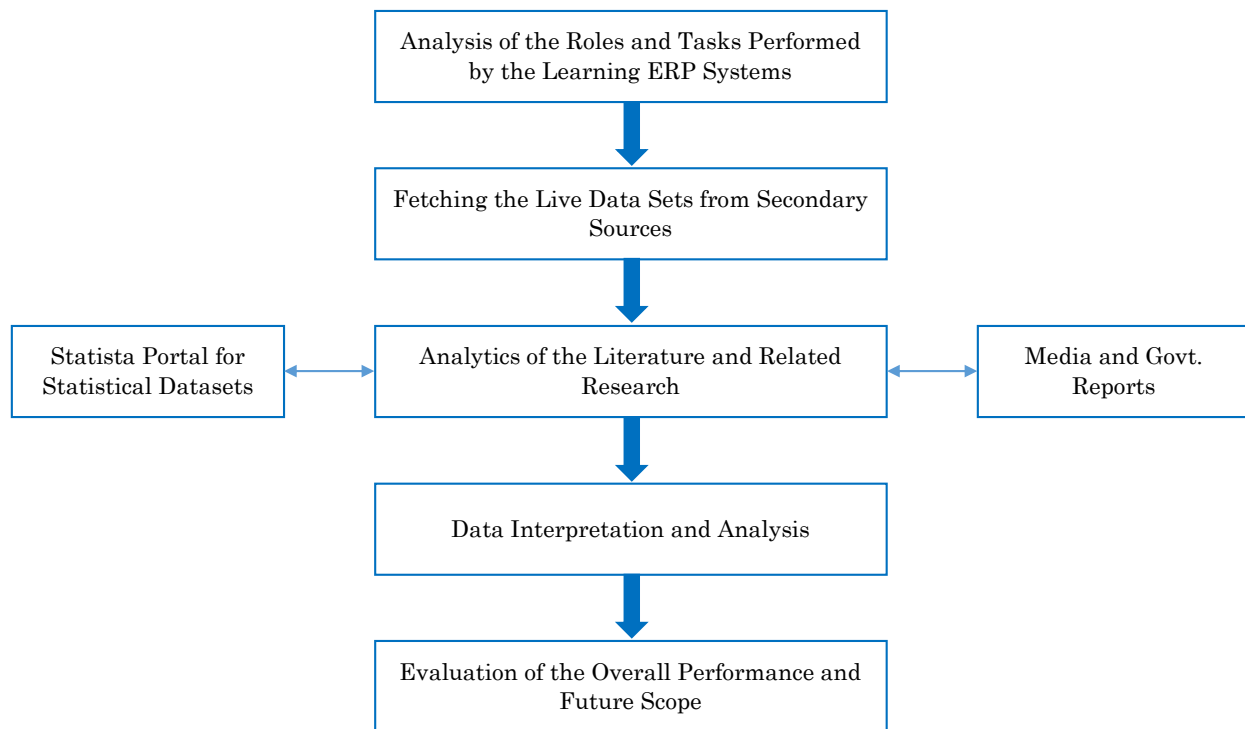
Table – 1: *Response of Learning ERP in Various Colleges from Students and Teachers*

Initial Response	Tamilnadu	Karnataka
Highly Satisfied	68	43
Satisfied	40	42
Not Satisfied	09	18

With respect to the above dataset of 220 people and with consideration of the performance parameters like reliability, assurance, tangibility, empathy and responsiveness, the Person's Chi2 test evaluates the below result of 5.467, p=0.2 and the result depicts that there is positive energy of understanding and assurance is embraced with the proper implementation of learning ERP when compared to the SAKAI and MOODLE LMS. The below table depicts the outcome from Bi-chi test.

Table – 2: *Case Analysis of Learning ERP*

	Various Respondents					
	Valid		Invalid		Total	
Factors	N	%	N	%	N	%
Reliability	200	91	20	9	220	100
Assurance	197	90	23	10	220	100
Tangibility	168	76	52	24	220	100
Empathy	154	70	66	30	220	100
Responsiveness	220	100	0	0	220	100

3.1 Predictive Results

The above result evident that the dataset is valid on majority cases and invalid on minimal cases. Because of this test result fact, it can be deduced that the educational institutions are practicing the technology acceptance model for various LMS and thereby achieving the higher degree of delivery. The output of the case summary with respect to the various factors shows that there is strong relationship and no null values found in the dataset and higher degree of freedom is achieved. The SPSS software hypothesis results show that there is a strong relationship available in between the technology adoption and relative performance of the students and teachers. The test statistics using the analysis of ANNOVA is depicted in the below table.

Table – 3: *Test Statistics using ANNOVA*

N	Mean	Std. Deviation	Minimum	Maximum
220	1.2000	.40684	1.00	2.00

Test Statistics

	Experience with LMS / ERP
Chi-Square result	12.700[a]
Df value	1.3
Asymp. Sign.	.002

3.2 Statistical Results

The interpretation of Fi – test can be made with respect to the valid and Invalid data found in the case analysis table depicted in table No:2. The results shows that the variance is high using the ERP LMS rather than the other LMS tool used in both government and private educational institutes. The value of square test is approximately equal to the 1 which is having higher degree of freedom. The same analysis has been performed with SAP as an ERP tool. The statistical data (valid and Invalid) cases can be predicted in the below table.

Table – 4: *Statistical Result*

|	Sum of Square	Df	F	Sig.
Valid data	.920	1	7.000	.036
Invalid data	2.300	26		
Total	3.220	27		

There is a clear understanding that the learning ERP in any organization is measured with respect to the homogeneity of variances. The standard deviation of the responses is higher than 3.2 which shows that the there is a good opinion among the students about the periodical feedback collecting from teachers and students and maintained in the global database. This collective feedback is analyzed globally and the solution can be provided in the same common database so that the user-friendly of data is achieved. Also, the social media platforms can be enabled in the feedback system.

The Mechanism of opening and clear communication between students in various engineering colleges has been captured in five different segments and the response percentage is illustrated in the below table 5.

Table – 5: *Mechanism of Communication from Students of Engineering Colleges for LMS*

Communication Acceptance / Rejection	No. of Response
Strongly Agree	24
Somewhat Agree	29
Somewhat Disagree	34
Strongly Disagree	11
Don't Know	2

Figure – 7: *Mechanism of Communication from Students for LMS*
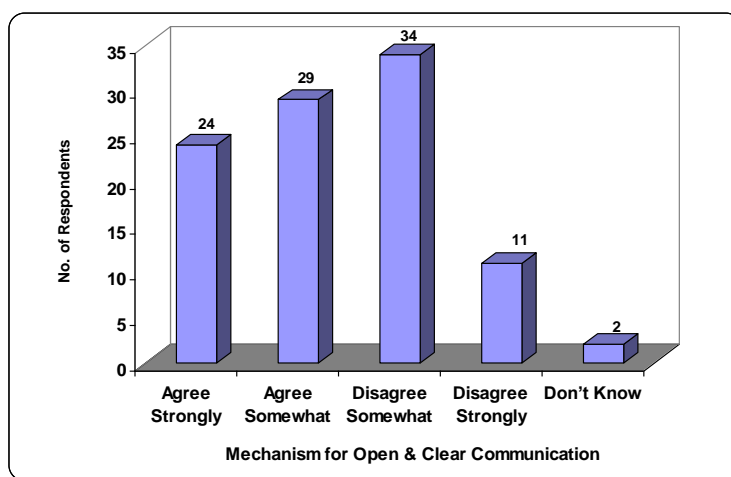
This is evident from the above figure 7 that the learning mechanism of ERP in college is having proper mechanism for open and clear communication.

INTERPRETATION AND EXPLANATION

The Null Hypothesis that "There is no effect of any Learning ERP in the Escalation of Academic Activities" is hereby rejected because the Significance Level of 0.025 is less than the threshold value of 0.05. In conclusion, it is apparent that there will be huge effect of integrating the new software suites for the academics so that the overall activities of the universities can be enhanced.

CONCLUSION

The activities in the education organizations are integrated with the technology products from last few years so that overall communication in the different types of users can be effectual. This work is focused on the market size of learning management systems or Learning ERP suites in the academics so that the overall escalation of academic activities can be done with higher degree of performance, accuracy and real time monitoring.

REFERENCES

[1] Daniel E. O' Leary, 2014. Enterprise Resource planning (ERP) Systems: For Education, An Empirical Analysis of Benefits, Vol 1, Journal of Emerging trends in ERP.

[2] Sulaiman A. AL-Hudhaif, King Saud University, 2012, ERP Implementation at King Saud University, Volume 12 Issue 5, Global Journal of Management and Business Research.

[3] Statista, The Statistical Portal URL: https://www.statista.com/search/?q=elearning.

[4] Mihaela Vorvoreanu, Krishna Madhavan, 2014, Volume 7, Mining Social Media Data for Understanding Students Leraning Experiences, IEEE Transactions on Learning Technologies.

[5] Lu Liu, Riu Miao and Chengzhi Li, 2017, Volume 4, The Impact of ERP systems firm Performance: An Empirical Analysis of Chinese Educational Firms, Journal of Advanced Computer Science and Applications 12(1).